UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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	ART UNIT	PAPER NUMBER
	2621	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/813,286	COMPTON ET AL.
	Examiner	Art Unit	
	Christopher Findley	2621	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-29* is/are rejected.

7) ☒ Claim(s) *15* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *7/19/2005,8/27/2004*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities: The title of the invention is misspelled. Presently, the title reads "Video Snychronisation," whereas "Snychronisation" should be spelled either "Synchronisation" or "Synchronization."

Appropriate correction is required.

Claim Objections

2.   Claim 15 is objected to because of the following informalities: Claim 15 recites "said clock timing packet containing said reference image synchronisation data is independent of said clock timing packet." The Examiner believes that the claim language is the result of a typographical error, since a packet cannot be independent of itself. For the purposes of prior art analysis, the Examiner will assume that claim 15 was intended to recite that the timing packet is independent of the data packet. Appropriate correction is required.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   **Claims 21-24 and 29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claims 21-24 recite software that fails to meet the statutory requirement set forth

in the <u>Interim Guidelines, Annex IV (a) and (b)</u>:

(a) Functional Descriptive Material: "Data Structures" Representing

Descriptive Material Per Se or Computer Programs Representing

Computer Listings Per Se

Data structures <u>not claimed as embodied in computer-readable media</u> are descriptive

material per se and <u>are not statutory</u> because they are not capable of causing functional

change in the computer.

The program has to be embodied in a *computer readable* medium. Claims 21-24

fail to recite this aspect.

(b) Nonfunctional Descriptive Material

Nonfunctional descriptive material that does not constitute a statutory process,

machine, manufacture or composition of matter and should be rejected under 35

U.S.C. § 101. Certain types of descriptive material, such as music, literature, art,

photographs and mere arrangements or compilations of facts or data, without any

functional interrelationship is not a process, machine, manufacture or composition of

matter.

The computer program as claimed in claims 21-24 is not properly associated with

the operation. It is possible that the computer program as claimed may be an unrelated

sub-routine or a simple "commence" instruction, which then causes the computer to

execute the operation that could be self-resident, and not encoded on the medium. The

computer program stored on the computer readable medium must include the steps

directed to performing the tracking operations. The Examiner suggests that the

computer program be more directly associated with the operation.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent

Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV,

reads as follows:

> Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency,
> voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are
> nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear
> that a claim reciting a signal encoded with functional descriptive material falls within any of the
> categories of patentable subject matter set forth in Sec. 101.
>
> ... a signal does not fall within one of the four statutory classes of Sec. 101.
>
> ... signal claims are ineligible for patent protection because they do not fall within any of the four
> statutory classes of Sec. 101.

Claims 24 and 29 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter as follows. Claim 24 defines a transmission

medium and claim 29 defines a timing packet with descriptive material. While

"functional descriptive material" may be claimed as a statutory product (i.e., a

"manufacture") when embodied on a tangible computer readable medium, a

transmission medium embodying that same functional descriptive material is neither a

process nor a product (i.e., a tangible "thing") and therefore does not fall within one of

the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence

of any physical structure or tangible material.

Appropriate correction to the claims is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   **Claims 1-9, 17, and 19-29 are rejected under 35 U.S.C. 102(e) as being**

anticipated by Aweya et al. (US 7043651 B2).

Re claim 1, Aweya discloses a method of synchronising the phase of a local

image synchronisation signal generator of a local video data processor in

communication with an asynchronous switched packet network to the phase of a

reference image synchronisation signal generator of a reference video data processor

also coupled to said network, said local and reference processors having respective

clocks, said reference and local image synchronisation signal generators generating

periodic image synchronisation signals in synchronism with said reference and local

clocks respectively, said method comprising the steps of: (i) frequency synchronising

said local and reference clocks (Aweya: Abstract section); (ii) said reference video data

processor sending, via said network, to said local data processor an image timing

packet providing reference image synchronisation data indicating a difference in timing,

measured with respect to said reference processor's clock, between a time at which

said image timing packet is launched onto said network and a time of production of a

reference image synchronisation signal (Aweya: column 4, lines 57-62); and (iii) said

local video data processor controlling the timing of production of said local image

synchronisation signals in dependence on said reference image synchronisation data

and a time of arrival of said timing packet (Aweya: column 4, lines 62-67).

Re claim 2, Aweya discloses that said controlling step comprises adjusting said

time of production of said local image synchronisation signal by a correction amount

derived from a difference between: (i) said reference image synchronisation data

(Aweya: column 2, lines 54-60; and. (ii) a time, measured with respect to said local

processor's clock and said local image synchronisation signal, of arrival of said timing

packet (Aweya: column 2, lines 54-60).

Re claim 3, Aweya discloses (i) said reference processor sending to said local

processor a plurality of said timing packets (Aweya: column 8, lines 22-32); and (ii) said

local processor controlling said timing of said production of said local image

synchronisation signal in dependence on a function of said differences (Aweya: column

8, lines 22-45) between: (iii) reference image synchronisation data in said timing

packets; and respective times of arrival of said timing packets at said local processor

(Aweya: column 8, lines 22-45).

Re claim 4, Aweya discloses that said function is an average of said differences

(Aweya: column 8, lines 58-62).

Re claim 5, Aweya discloses the step of adding a delay to said local image synchronisation signal (Aweya: column 5, lines 19-36).

Re claim 6, Aweya discloses that said delay is a predetermined delay (Aweya: column 8, lines 22-45, the delay time is determined before clock synchronization occurs).

Re claim 7, Aweya discloses that said reference data processor comprises a source of video data produced synchronously with said reference processor's clock, said method comprising: (i) said reference processor sending to said local data processor, via said network, data packets containing said video data, said image timing packets being sent independently of said data packets (Aweya: column 3, lines 17-20).

Re claim 8, Aweya discloses that said reference data processor comprises a source of video data produced synchronously with said reference processor's clock, said method comprising: (i) said reference processor sending to said local data processor, via said network, image timing packets containing said video data and also providing said reference image synchronisation data (Aweya: column 3, lines 17-20).

Re claim 9, Aweya discloses the step of: (i) said reference processor sensing when said network has capacity to carry an image timing packet (Aweya: column 4, lines 21-29, queuing); and (ii) said reference processor sending an image timing packet when such network capacity exists (Aweya: column 4, lines 21-29, queuing).

Re claim 17, Aweya discloses the step of: said local processor aligning an image of a video signal with said local image synchronisation signal (Aweya: column 1, lines 51-53, the data may be video data).

Re claim 19, Aweya discloses that said reference image synchronisation data indicates a difference in timing, measured with respect to said reference processor's clock, between a time at which said image timing packet is launched onto said network and a time of production of an immediately preceding reference image synchronisation signal (Aweya: column 8, lines 22-45, times n and n-1 are used for calculation).

Re claim 20, Aweya discloses that timing packets carrying information relating to at least two image synchronisation signals are launched onto said network (Aweya: column 4, lines 57-67, the synchronization of the local clock is calculated from the difference between two time stamps sent by the transmitter).

Re claim 21, Aweya discloses computer software comprising program code for carrying out a method according to claim 1 (Aweya: column 5, lines 38-41).

Re claim 22, Aweya discloses providing medium by which software according to claim 21 is provided (Aweya: column 13, lines 2-5).

Re claim 23, Aweya discloses that said medium is a storage medium (Aweya: column 13, lines 2-5).

Re claim 24, Aweya discloses that said medium is a transmission medium (Aweya: column 5, lines 38-41).

Re claim 25, Aweya discloses a video network comprising: (i) a reference video

data processor having a reference image synchronisation signal generator and a

reference clock generator, said reference synchronisation signal generator generating

periodic image synchronisation signals in synchronism with said reference clock

(Aweya: column 4, lines 57-62); (ii) a local video data processor having a local image

synchronisation signal generator and a local clock generator frequency-locked to said

reference clock generator, said local synchronisation signal generator generating

periodic image synchronisation signals in synchronism with said local clock (Aweya:

column 4, lines 62-67); (iii) an asynchronous packet-based network linking said local

processor and said reference processor (Aweya: column 3, lines 9-13); (iv) said

reference video data processor comprising means for sending, via said network, to said

local data processor an image timing packet providing reference image synchronisation

data indicating a difference in timing, measured with respect to said reference

processor's clock, between a time at which said image timing packet is launched onto

said network and a time of production of a reference image synchronisation signal

(Aweya: column 3, lines 39-42); and (v) said local processor comprising means for

controlling timing of production of said local image synchronisation signal in

dependence on said reference image synchronisation data and said time of arrival of

said timing packet (Aweya: column 8, lines 22-45).

Re claim 26, Aweya discloses a local video data processor having a local image

synchronisation signal generator and a local clock generator frequency-lockable to a

reference clock generator at a reference video data processor connectable to said local

processor via an asynchronous packet-based network, said local synchronisation signal generator generating periodic image synchronisation signals in synchronism with said local clock (Aweya: column 8, lines 1-45); (i) said local processor comprising means for controlling timing of production of said local image synchronisation signal in dependence on reference image synchronisation data provided by a timing packet from said reference clock generator and a time of arrival of such a timing packet (Aweya: column 4, lines 57-67).

Re claim 27, Aweya discloses a reference video data processor having a reference image synchronisation signal generator and a reference clock generator, said reference synchronisation signal generator generating periodic image synchronisation signals in synchronism with said reference clock; said reference processor being connectable via an asynchronous packet-based network to a local video data processor having a local image synchronisation signal generator and a local clock generator frequency-lockable to said reference clock generator, said local synchronisation signal generator generating periodic image synchronisation signals in synchronism with said local clock (Aweya: column 8, lines 1-45); (i) said reference video data processor comprising means for sending, via said network, to said local data processor an image timing packet providing reference image synchronisation data indicating a difference in timing, measured with respect to said reference processor's clock, between a time at which said image timing packet is launched onto said network and a time of production of a reference image synchronisation signal (Aweya: column 3, lines 39-42; column 4, lines 57-67).

Re claim 28, Aweya discloses an asynchronous switched network comprising a

plurality of nodes, at least one of which nodes is coupled a reference data processor

and at least one other of which is coupled to a local data processor (Aweya: Figs. 1 and

2A).

Re claim 29, Aweya discloses a reference timing packet for use in an

asynchronous switched packet network in which packets of video data are transmitted

from a source to a destination, said packet providing a destination address of a

processor and reference image synchronisation data indicating a difference in timing,

measured with respect to a reference clock, between a time at which said packet is

launched onto said network and a time of production a reference image synchronisation

signal (Aweya: column 3, lines 17-20; column 4, lines 57-67).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 10-16 and 18 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Aweya et al. (US 7043651 B2) in view of Lahat (US 6963561 B1).

Re claim 10, Aweya discloses a majority of the features of claim 10, as discussed above in claim 1; and additionally, Aweya discloses that said step of frequency synchronising said local and reference clocks comprises the steps of: (i) said reference processor sending to said local data processor, via said network, clock timing packets of said local processor and reference clock data indicating a time at which said clock timing packet is sent (Aweya: column 8, lines 22-32); and (ii) said local processor controlling said frequency of said local processor's clock in dependence on said reference clock data and times of arrival of said clock timing packets (Aweya: column 8, lines 33-45). Aweya does not specifically disclose that each packet provides a destination address. However, Lahat discloses a facility for transporting TDM streams over an asynchronous Ethernet network using internet protocol, wherein the UDP header, the TCP header, and the IP header all contain destination information (Lahat: Figs. 13, 14, and 15). Since both Aweya and Lahat relate to transmitting TDM packets over asynchronous networks, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the header addressing of Lahat with the synchronization system of Aweya in order to provide IP based voice and data transmission over a legacy network, thereby allowing for more efficient utilization of the network, and in turn providing the capability for new services for customers (Lahat: column 4, lines 57-65). The combined system of Aweya and Lahat has all of the features of claim 10.

Re claim 11, the combined system of Aweya and Lahat discloses a majority of the features of claim 11, as discussed above in claim 10, and additionally Aweya

discloses the steps of: (i) said reference processor counting cycles of said reference processor's clock (Aweya: column 3, lines 40-42); and (ii) said reference processor setting said reference clock data as said count of cycles of said reference processor's clock in dependence on a time at which said clock timing packet containing said reference clock data is launched onto said network (Aweya: column 3, lines 40-42, transmitter clock used to generate timestamps).

Re claim 12, the combined system of Aweya and Lahat discloses a majority of the features of claim 12, as discussed above in claim 11, and additionally Aweya discloses the steps of: (i) said local processor counting cycles of said local processor's clock (Aweya: column 5, lines 58-63); (ii) said local processor generating local clock data as a count of cycles of said local processor's clock at a time of receipt of a clock timing packet containing reference clock data (Aweya: column 5, lines 58-63); and (iii) said local processor controlling said local processor's clock in dependence on an error signal dependent on a difference between said reference clock data in successively received timing packets and a difference between local clock data indicating said local clock time at said times of receipt of said timing packets (Aweya: column 8, lines 33-45).

Re claim 13, the combined system of Aweya and Lahat discloses a majority of the features of claim 13, as discussed above in claim 12, and additionally Aweya discloses the step of low pass filtering said error signal to generate a low-pass filtered error signal (Aweya: column 8, lines 58-62).

Re claim 14, the combined system of Aweya and Lahat discloses a majority of the features of claim 14, as discussed above in claim 13, and additionally Aweya discloses the steps of: (i) said local processor accumulating said low-pass filtered error signal (Aweya: column 8, lines 58-62, an average requires accumulation of data); and (ii) said local processor controlling said local processor's clock in dependence on said accumulated error signal (Aweya: column 8, lines 42-45).

Re claim 15, the combined system of Aweya and Lahat discloses a majority of the features of claim 15, as discussed above in claim 10, and additionally Aweya discloses that said clock timing packet containing said reference image synchronisation data is independent of said data packet (Aweya: column 3, lines 17-20, the timing information may be sent with or without the user data).

Re claim 16, the combined system of Aweya and Lahat discloses a majority of the features of claim 16, as discussed above in claim 10, and additionally Aweya discloses that said timing packet containing said reference image synchronisation data also contains said reference clock data (Aweya: column 3, lines 17-20).

Re claim 18, Aweya discloses a majority of the features of claim 18, as discussed above in claim 1. Aweya does not specifically disclose that said image synchronisation signal is a field or frame synchronisation signal. However, Lahat discloses a facility for transporting TDM streams over an asynchronous Ethernet network using internet protocol, wherein packet arrival jitter is measured on a per frame basis (Lahat: column 18, lines 27-31). Since both Aweya and Lahat relate to transmitting TDM packets over

asynchronous networks, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the header addressing of Lahat with the synchronization system of Aweya in order to provide IP based voice and data transmission over a legacy network, thereby allowing for more efficient utilization of the network, and in turn providing the capability for new services for customers (Lahat: column 4, lines 57-65). The combined system of Aweya and Lahat has all of the features of claim 18.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a.   Systems and methods for synchronization in asynchronous transport networks; Hadzic et al. (US 20040062278 A1)

b.   Synchronizing services across open cable and packet cable; Birks et al. (US 7093275 B2)

c.   Method of and system for controlling a frequency via an asynchronous transmission network and mobile telephone network including the system; Abouchakra et al. (US 6819685 B1)

d.   Method and apparatus for synchronizing audio and video data; Lundblad et al. (US 20050060753 A1)

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Findley whose telephone number is (571) 270-1199. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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